LightGate 1 service (FCC No. 1 Special Access) has a maximum capacity of a single DS3 (44.736 Mbps). In addition, DS0 and subrate channels can be accommodated via DS1 Basic Channelization Systems (DS1 to DS0) and DS0 Basic Channelization Systems (DS0 to Subrate). Additional central office interfaces are necessary to complete the channelization (DS0 and subrate).

LightGate 2 servide (FCC No. 1 Special Access) provides all the capabilities of LightGate 1 service (FCC No. 1 Special Access) with the capacity of up to 3 DS3s.

LightGate 3 service (FCC No. 1 Special Access) provides all the capabilities of LightGate 1 and 2 service (FCC No. 1) with the capacity of up to 12 DS3s, with the exception of the 28 DS1 channel systems necessary for DS1 channelization.

LightGate 4 service (FCC No. 1) provides all the capabilities of LightGate 1 and 2 service (FCC No.1) with the capacity of up to 24 DS3s with the exception of the 28 DS1 channel systems necessary for DS1 channelization.

The following chart provides a summary comparison of LightGate 1, LightGate 2, LightGate 3 and LightGate 4.

LightGate 1	LightGate 2
1 DS3 Required	3 DS3 (1 Required)
28 DS1 (Capacity) (Groups of 4 required in the Private Line Services Tariff)	84 DS1 (Capacity) (Groups of 4 required in the Private Line Services Tariff)
672 DS0 (Capacity)	2016 DS0 (Capacity)
LightGate 3	**LightGate 4**
12 DS3 (1 Required)	24 DS3 (1 Required)
336 DS1 (Capacity)	672 DS1 (Capacity)
8064 DS0 (Capacity)	16128 DS0 (Capacity)

"Capacity" indicates quantity available and subsets of a given unit may be chosen up to the number of units indicated

Potential Customers

- Have or plan to install large ESSX® service systems
- Have or plan to install a PBX
- Are trendsetters
- Demand leading edge technology
- Require stable rates for budget consideration
- Transmit large volumes of voice and/or data traffic intraLATA and/or Access
- Have a need for integrated applications

LightGate service Uses Include:

- Digital ESSX® service connectivity
- Digital PBX connectivity
- Data/information transport (including many applications)

- Video Transport
- Switched Access Transport
- Special Access Transport

How LightGate Service Works

LightGate service provides optical fiber between wire centers and/or from the customer's premises to the serving wire center. Information is always in multiplexed format and carried in broadband digital format at a combined data rate of at least 45 Mbps (with DS1 or DS3 interface). LightGate 2 service provides up to 135 Mbps. LightGate 3 and 4 provide up to 540 Mbps and 1080 Mbps respectively.

The LightGate service system is composed of:

- Fiber-optic system terminals
- Physical fiber between the customer's premises and the central office
- Equipment such as channel banks which are needed for terminations and multiplexing
- Electronics for automatic switching to a spare fiber pair for backup

Description of components

- Fiber backbone
  - — Composed of slender hair-like strands of translucent fiber. It withstands heat, humidity, and pressure.
  - — Lasers or light emitting diodes (LEDs) transmit optical signals over the fiber
- Multiplexing/demultiplexing equipment
  - — Located at both the CO and customer's premises
  - — Breaks high speed transmission down into DS3 and DS1 digital bit stream
  - — DS1 channels at the customer's premises that are connected to computers, channel banks, other multiplexers, toll switches, or digital PBXs
- DS3 and DS1 Interface
  - — The interface is located at the customer's premises and the serving wire center.
- Channelization
  - — Located at the serving wire center
  - — The channel bank furnishes space for up to 24 DS0 plug-ins for each DS1 plug-ins are optioned f particular feature that a customer activates.
  - — Customers can then extend OPXs, tie lines, and voice or data channels to other premises.

Features and Uses

Feature	Use
Digital or analog data transmission	Offers flexibility to customers; allows upgrade
	Offers voice-grade service for PBX trunks, off premi extensions (OPX), tie lines, voice private lines

Digital or analog data transmission	Transmits data: • Voice-grade analog • DDS (2.4, 4.8, 9.6, 56 Kbps) • 1.544 Mbps • 44.736 Mbps
Fiberoptic Facilities	Offer exceptional reliability and signal quality; resistant to electromagnetic interference Provides security; unauthorized taps are very difficult

Strengths - LightGate® Service

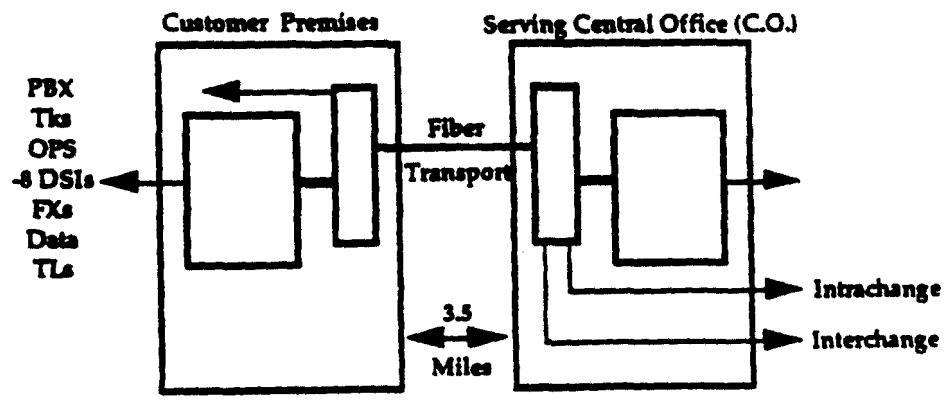
- More reliable and accurate than air or copper media
- Economy of scale pricing plan
- Serves multiple applications: voice, data and image
- Link connectable with other BellSouth products
- Separate Alternate Facilities (SAFT, pronounced safety) (FCC No. 1 Interstate Access only)- SAFT Level 1 service protection facilities will be guaranteed to be provided in a separate sheath from the primary facilities. SAFT II service protection facilities will be guaranteed to be provided in a separate sheath, separate supporting structure and route from the primary facilities. Intermediate equipment, if required, will be configured to prevent a single service interruption point.

Tariff Information

LightGate service is found in Section B7.4 of the state private line tariffs and Section 7.5.9 of the FCC No. 1 Tariff.

Application I

A large multi-location customer has 12 intraexchange and 20 interexchange off-premises stations (OPS), 31 intraexchange and 48 interexchange tie lines, 22 foreign exchange lines, and 114 analog data channels (intraexchange and interexchange channels).



Proposed System Details: LightGate® service System (5 Year Contract)

In this application, the LG1 System is configured to provide 20 DS1 channels with associated 288 and 196 size channelization systems (D4). Only 19 DS1 channels are working between the CO and customer

premises, however, the equipment for DS1 service requires that it be provided in groups of 4 DS1 c nels (Private Line Service GTariff only). Hence, a total of 20 DS1 channels must be ordered. One DS channel is available for immediate customer use as desired. The 179 PBX trunks are channelized in the CO 196 size system. They are transported as DS1 channels over fiber and handed off to the customer as 8 DS1 channels feeding directly into the customer's digital PBX. Twenty-two data channels and a portion o the tie lines (24) are channelized in this CO for other local locations. Two DS1 channels are routed locally to another location handling 12 OPS and 29 data channels. The remaining seven DS1 channels (20 OPS, 2 FX, 58 tie lines & 63 data channels) are routed to other customer interexchange locations. These DS1 channels do not require channelization in the CO; they will be converted on premises to standard analog channels.

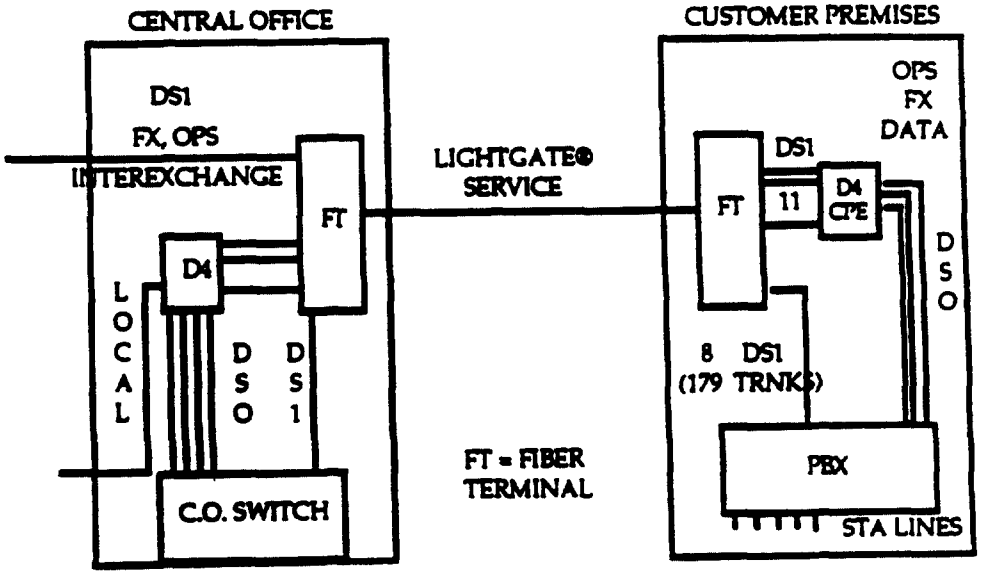
Results

Total number of voice grade equivalents: 429

LightGate service 1 System maximum capacity: 67

This system provides the customer immediate savings in recurring rates and substantial growth potential at very low costs per channel. A spare DS1 is available for immediate use at no additional cost; additional PBX trunks and interexchange tie lines are available at significantly reduced rates. Savings may be expected with other service additions also.

LightGate 2, 3 and 4 applications are similar to LightGate 1 applications and differ to the user only in capacity. LightGate 2, 3 and 4 also require an additional DS3/DS1 multiplexer element.



	Intermediate Stage	
179 PBX Trunks (Channelized in the C.O. 240 size systems - transported as DS1 channels over fiber handed off to customer as 8 DS1s.)	8 DS1s (24 PBX trunks each - last DS1 has only 11 DSOs.	LightGate Transport

12 Intraexchange OPS

20 Interexchange OPS

Total of 19 DS1s
Requires order of
20 DS1s due to
tariffing required

31 Intraexchange Tie Lines

48 Interexchange Tie Lines 11 DS1s

22 Foreign Exchange Lines

114 Analog Data Channels (Intra and Interexchange)

Total DSOs 247

RESOURCES

Advertising Brochures

BellSouth ... Your Doorway to the Future in Banking*	(BSSM 9428/PIN 922940986)
Make Every Move Count	(BSSM 9408B/PIN 638940817)
The Heart of Healing Though Advanced Telecomm.*	(BSSM 9426/PIN 921940987)

* service mentioned

AIM Bulletins

#14	1/20/92	#148	1/28/94
#67	12/7/92	#159	4/25/94
#80	2/8/93		
#97	4/5/93		

BellSouth at INFORUM Solutions

October 1992

Communique Bulletins

#142	6/13/94
#168	12/15/94

Documentation

Data Competitive Reference Guide	(TS041)
Wideband Services Handbook	(TS013)

Training

Digital Products and Services Management Overview	(CN204A)

Videotapes

Superbowl XXIV/LightGate service/Sawgrass Co.	"On Line" video magazine

TAB 51

Message/Measured Rate Basic Local Exchange Business Line Information Package

(This information is provided solely as a convenient reference for BellSouth's customers. While BellSouth believes information contained herein to be consistent with applicable tariffs, the tariffs shall prevail in any instance in which an inconsistency may exist.)

Message/Measured Rate Basic Local Exchange Business Line Information Package

1. Service Description

A. Basic Service features

Message/Measured Rate Basic Local Exchange Service for business customers provides access to the public switched network for local and long distance calling. Message Rate Service bills the customer a flat monthly charge for a set number of local calls or messages per line with an additional charge for every local message in excess of the base allowance. Measured Rate Service bills the subscriber a flat monthly rate which includes a monetary usage allowance for calls completed to stations in the local calling area. Charges for local calls in excess of the allowance are also applicable and are based upon length of call, originating and terminating point of call, and time of day call made. Message/Measured Rate Service is typically offered as part of an optional calling plan.

B. Basic Service Capabilities and Restrictions

The service is comprised of the exchange access line, which includes the central office equipment and all the BellSouth plant facilities up to and including the Standard Network Interface. The exchange access line facilities are BellSouth provided and maintained.

C. How Does This Service Work

This service provides basic dial tone for business customers.

D. Feature Interaction

None.

2. Tariff References/Price List References

Basic Local Exchange Business Service can be found in Section A3 of the BellSouth Telecommunications, Inc. General Subscriber Services Tariff (GSST) in each of the nine states served by BellSouth.

3. Installation Intervals

Normal Installation Intervals YES_X_ NO___
Project Coordination Required YES___ NO_X_

4. Service Inquiry & Ordering Guidelines

Following are the forms required to be submitted to the LCSC for order issuance:

- Local Service Request Form
- End User Information Form
- Resale Service Form

Copies of the forms with line-by-line instructions are located in the Resale Ordering Guide.

A.

Version 1 - March. 1997

MEASURED/MESSAGE RATE SERVICE INFORMATION PACKAGE

(This information is provided solely as a convenient reference for BellSouth's customers. While BellSouth believes information contained herein to be consistent with applicable tariffs, the tariffs shall prevail in any instance in which an inconsistency may exist.)

MEASURED/MESSAGE RATE SERVICE
INFORMATION PACKAGE

I. Service Description

A. Basic Service Features

Measured/Message Rate service is the monthly service that is provided to customers and includes a usage component. Measured service includes local calling in their defined local exchange area that is priced based on amount of outbound calling. Message Rate service typically includes a per message rate above a specified monthly number of messages. Refer to Attachment A for a brief description of the active plans in the appropriate state.

B. Basic Service Capabilities

Measured/Message Rate service provides dial tone access for both local and long distance calling and is an alternative to flat rate service.

2. Tariff References/Price List References

A. Tariff Reference

The location of the various Measured/Message Rate service in the General Subscriber Service Tariff (GSST) varies by plan and, in some cases, by state. Refer to Attachment A for a listing of the plans and the tariff reference for each.

B. Pricing Structure and Description

Pricing structures are plan specific and could be one or more of the following:

- Non-recurring charge (NRC): Service charges specified in Section A4 of the GSST may be applicable.
- Recurring Charge: A flat recurring monthly amount may be billed monthly in advance.
- Usage Charges: Usage charges may apply. These charges are billed in arrears and may be subject time of day and holiday discounts.

Refer to Attachment A, attached, for plan specific information.

3. Installation Intervals - Normal installation intervals apply for these services.

MESSAGE/MEASURED RATE SERVICE
INFORMATION PACKAGE
Attachment A

State	Plan	Tariff Location	Plan Description
Alabama			NA
Florida	Message Rate	A3	Message Rate service applies to the basic local calling area. Subscribers are charged $ .25 per ca after a 30 message monthly call allowance per lin
	Optional Measured Service - Local	A3	This plan provides for Local Measured service in the basic local calling area. The monthly recurrir rates contains an allowance of $3.00 per line. Th local calling area is divided into 2 or 3 bands and offered in the Cocoa, Cocoa Beach, Eau Gallie, Melbourne and Titusville exchanges only.
Georgia	Georgia Community Calling (GCC)	A3	SEE OPTIONAL CALLING PLANS
Kentucky			NA
Louisiana			NA
Mississippi			NA
North Carolina			NA
South Carolina			NA
Tennessee	Measured Rate	A3	Provides measured local calling in the basic loca calling area. There is a usage allowance, and the is no cap.
	Message Rate	A3	Provides message rate local calling in the basic local calling area. There is a usage allowance ar there is no cap. Usage is priced on a per call ba at $.10 per call.

Note: Grandfathered plans are not included in this attachment.

TAB 52

Version 1 - March, 1997

MEASURED/MESSAGE RATE SERVICE INFORMATION PACKAGE

(This information is provided solely as a convenient reference for BellSouth's customers. While BellSouth believes information contained herein to be consistent with applicable tariffs, the tariffs shall prevail in any instance in which an inconsistency may exist.)

MEASURED/MESSAGE RATE SERVICE
INFORMATION PACKAGE

I. Service Description

A. Basic Service Features

Measured/Message Rate service is the monthly service that is provided to customers and includes a usage component. Measured service includes local calling in their defined local exchange area that is priced based on amount of outbound calling. Message Rate service typically includes a per message rate above a specified monthly number of messages. Refer to Attachment A for a brief description of the active plans in the appropriate state.

B. Basic Service Capabilities

Measured/Message Rate service provides dial tone access for both local an long distance calling and is an alternative to flat rate service.

2. Tariff References/Price List References

A. Tariff Reference

The location of the various Measured/Message Rate service in the General Subscriber Service Tariff (GSST) varies by plan and, in some cases, by stat Refer to Attachment A for a listing of the plans and the tariff reference for each.

B. Pricing Structure and Description

Pricing structures are plan specific and could be one or more of the followin

- Non-recurring charge (NRC): Service charges specified in Section A4 o the GSST may be applicable.
- Recurring Charge: A flat recurring monthly amount may be billed monthl in advance.
- Usage Charges: Usage charges may apply. These charges are billed i arrears and may be subject time of day and holiday discounts.

Refer to Attachment A, attached, for plan specific information.

3. Installation Intervals - Normal installation intervals apply for these services.

MESSAGE/MEASURED RATE SERVICE
INFORMATION PACKAGE
Attachment A

State	Plan	Tariff Location	Plan Description
Alabama			NA
Florida	Message Rate	A3	Message Rate service applies to the basic local calling area. Subscribers are charged $ .25 per cal after a 30 message monthly call allowance per line
	Optional Measured Service - Local	A3	This plan provides for Local Measured service in the basic local calling area. The monthly recurrin rates contains an allowance of $3.00 per line. The local calling area is divided into 2 or 3 bands and i offered in the Cocoa, Cocoa Beach, Eau Gallie, Melbourne and Titusville exchanges only.
Georgia	Georgia Community Calling (GCC)	A3	SEE OPTIONAL CALLING PLANS
Kentucky			NA
Louisiana			NA
Mississippi			NA
North Carolina			NA
South Carolina			NA
Tennessee	Measured Rate	A3	Provides measured local calling in the basic local calling area. There is a usage allowance, and ther is no cap.
	Message Rate	A3	Provides message rate local calling in the basic local calling area. There is a usage allowance an there is no cap. Usage is priced on a per call basi at $.10 per call.

Note: Grandfathered plans are not included in this attachment.

TAB 53

MegaLink® Service
CLEC Information Package

This information is provided solely as a convenient reference for BellSouth's Customers. While BellSouth believes information contained herein to be consistent with applicable Tariffs, the Tariffs shall prevail in any instance in which an inconsistency may exist.

Service Description

MegaLink Service allows the customer the capability to transmit data at the DS1 level. MegaLink utilizes 1.544 Mbps facilities for its delivery on a link basis or as an end-to-end service. MegaLink service uses digital carrier technology (T1) to transmit DS1 signals to and from customer's premises. MegaLink is suited for customers with needs for multiple Private Line DS0 level circuits. A potential MegaLink customer will need to transfer large volumes of voice, data video, or control signals at high speed between at least two locations in the same LATA. The high speed and volume improves the customer's information processing and reduces paper flow.

- MegaLink is designed for medium to large businesses.
- It allows customers to use high-speed, high-volume digital facilities for Private Branch Exchange (PBX) systems, off-premises extensions, tie lines, or interoffice data connections.
- MegaLink fits between voice-grade services and/or DS0 level digital data services and LightGate® service.
- It is a good product for customers who need to replace their multiple voice-grade lines and low speed/high speed digital lines.

MegaLink uses include:

- Control monitoring
- Order entry systems
- Customer billing transfer
- Reservation information and services
- Bulk data processing (Batch)
- Teleconferencing
- Electronic funds transfer
- Voice and data communications
- Electronic mail transfer
- Inventory management

With MegaLink service, there are four possible configurations:

- From the customer's location to the serving central office (link)
- From the customer's location to a distant central office (link)
- From the serving central office to another central office (link)
- From the customer's location to another customer's location

In the first three instances, the partial channel is called a link. MegaLink service may be provided as a link to:

- Another MegaLink Service
- MegaLink Channel Service®
- Multiserv® Service
- FlexServ® Service
- LightGate® Service
- SMARTRing® Service

MegaLink service can be provided through any central office and does not require a node.

MegaLink Service is a digital facility that provides for the two way simultaneous transmission of a bit stream operating at 1.544 Mbps. There are two line coding formats that are currently available for use. The first is an isochronously timed bipolar return to zero bit stream operating at 1.544 Mbps. This means that all timing is carried within the bit stream itself. A newer format, that allows for clear channel services, is known as Bipolar with 8 Zero Substitution (B8ZS). B8ZS is a method to provide a Clear Channel Capability (CCC). This supports transport of a framed DS1 signal with unconstrained payload bits. Maintenance signals are transmitted in-band and in the data link of the ESF format. The line coding must be specified by the CLEC.

MegaLink is a point to point service where the customer provides his own timing. The exception to this is when a Digital Cross Connect Device is utilized. Network timing would then be required.

One of the following framing formats are required to connect to BellSouth equipment:

- Superframed (D4)
- Extended Superframe (ESF)

D4 - Super Frame: Of the 1.544 Mbps DS1 signal, 1.536 Mbps are used for the customer's data and 8 Kbps are used by BellSouth for D4 Superframe framing.

Extended Superframe (ESF): Of the 1.544 Mbps DS1 signal, 1.536 Mbps are used for customer data, 4 Kbps are used for BellSouth framing and 4 Kbps are used for customer performance monitoring.

The framing format must be specified by the CLEC. The same framing format shall be used in both directions of transmission.

Customer-Provided Terminal Equipment, Customer-Provided Derivation Equipment and Customer-Provided Communications Systems may be connected at the premises of the customer to MegaLink service. The customer may create digital bit streams from a MegaLink service and such equipment may be connected for transmission of such bit streams when connected through a customer-provided Channel Service Unit (CSU) or Terminating Equipment (TE).

Clear Channel Capability (CCC) is an arrangement that alters a DS1 1.544 Mbps signal with unconstrained information bits, to meet pulse density requirements outlined in Technical Reference 73525. This will allow a customer to transport an all zero octet over a MegaLink service channel providing an available combined maximum 1.536 Mbps data rate. This arrangement requires the customer signal at the channel interface to conform to Bipolar with 8 Zero Substitution (B8ZS) line code as described in Technical Reference 73525.

CCC is provided on MegaLink service channels between two customer designated premises, from a customer premises to their Serving Wire Center or Node Central Office and/or to a remote Serving Wire Center or Node Central Office, and from a Central Office to a Central Office, and is subject to the availability of facilities. This optical feature may be ordered at the same time the MegaLink service channel is ordered, or it may be ordered as an additional feature of an existing MegaLink service channel.

A MegaLink service consists of several standard components with most provided by BellSouth.

Components provided by BellSouth:

- Digital local channel
- Interoffice channel (where applicable)

A digital local channel is the connection between the customer's location and the serving central office. The element is charged differently based on the state where the service is provisioned: i.e., either in ½ mile increments - "First" and "Each Additional" or on a flat rate basis.

Interoffice channels are the connection between central offices. The rates are based on airline miles. Two sets of USOCs are associated with the digital interoffice channel:

- Fixed rates
- Per Mile Mileage rates

The customer must specify Line coding and Frame Format.

Provided at the Customer Location by the customer:

- Channel Service Unit (CSU)

A network interface is required at the customer's premises to interface the MegaLink local channel with the customer's Network Channel Terminating Equipment (NCTE). Since the NCTE and the CSU are considered customer premises equipment it is critical that the CLEC identify the location of the customer's network interface. This information can impact the location of the last repeater in the circuit. Also, the location of the network interface is dictated by the minimum point of penetration rules.

Signaling is very important. AMI/B8ZS and ESF/SF are areas where most troubles occur on installation.

MegaLink service can be provided in the four following pricing arrangements:

- Month-to-Month
- 24-48 month contract plan
- 49-72 month contract plan
- 73-96 month contract plan

The rates provided under contract plans are not subject to increase by BellSouth until the contract period expires. There is, however, a termination liability if the service is terminated or disconnected prior to the end of the contract.

Service ordering connection charges apply to new service as well as changes, additions and moves of equipment. The initial service establishment charge includes engineering design, common centralized testing and coordination, and establishing and processing specific data in connection with a customer's request.

Premises visit charges also apply for each customer (digital local channel) premises location.

Tariff References/Price List References

MegaLink service is available for intraLATA service in all BellSouth service areas. The MegaLink service tariff is located in section B7 of the state-specific Private Line Service Tariff.

Installation Intervals

Normal Installation Intervals	**NO**
Project Coordination Required	**YES**

Service Inquiry and Ordering Guidelines

To order MegaLink service the CLEC should submit the following forms to the CLEC Account Team:

Local Service Request (LSR)
End User Information Form

Both forms are available in the Resale Ordering Guide.

MegaLink service requests will always require the use of a service inquiry for any given customer and BellSouth location(s). The service inquiry is used to determine:

- Availability of facilities
- Extraordinary costs, if any
- Service intervals

If the customer is changing the line coding or framing format on existing service, a service order will be required. In order to facilitate the process, it is critical to provide all the details of the design when submitting the order, including a diagram of the network.

For all initial or subsequent order activity on MegaLink service, contact your BellSouth CLEC Account Team.

Version 1 March, 1997

MegaLink® Channel Service
CLEC Information Package

This information is provided solely as a convenient reference for BellSouth's Customers. While BellSouth believes information contained herein to be consistent with applicable Tariffs, the Tariffs shall prevail in any instance in which an inconsistency may exist.

Service Description

MegaLink Channel Service provides channelization for individual Voice Grade/DS0 channels that a customer desires transported via a high capacity 1.544 Mbps channel. With this service, the customer, in essence, "leases" D4 channel bank capacity from BellSouth in the central office. MegaLink Channel Service (MLCS) is an intraLATA digital service designed to accommodate large customers with concentrations of channel services between a customer's premises and the BellSouth central office or between central offices.

MLCS is provided in conjunction with the high capacity 1.544 Mbps digital channels of MegaLink service with channelization in at least one central office required. MegaLink Channel Service provides the benefit of all digital transport but can receive or deliver signals in analog or digital form to meet customer applications.

Link Connectivity

MegaLink Channel Service represents a significant expansion of the concept of "link" (or partial channel) services to the general product line of private line and switched services. In other words, individual channel services can connect to MLCS on a "link" basis rather than the traditional, existing 2-point or multipoint basis.

MegaLink Channel Service is provided in packages based on multiple voice grade channel equivalents (DS0) where 24 voice grade channels are equal to a DS1.

Characteristics

MegaLink Channel Service may be characterized by:

- Normal analog channel network interface specifications will be superseded by the electrical specifications of the 1.544 Mbps (DS1) channel which is actually terminated.

- Channel Service Units (CSUs) are the responsibility of the customer.
- Each DS0 channel provided will have identity only as a "time slot" within a DS1 channel. Compatible digital to analog conversion equipment must be provided by the customer to derive the desired analog services.

- MLCS uses D4 channel banks or compatible equipment to perform the channelization function.